

SHAPING THE ARMY'S INFORMATION TECHNOLOGY ACQUISITION WORKFORCE IN AN ERA OF OUTSOURCING

BY

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by

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Disclaimer

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ABSTRACT

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For the last few decades, a variety of market forces and government initiatives have pushed the Army to outsource IT system development. From having entire units of government programmers and hardware engineers, the Army has steadily moved toward outsourcing—using commercial industry to design and build its IT solutions.

But at the same time the Army has moved away from designing and building its own IT systems, IT has become more prevalent and pervasive within the Army. It has become even more critical to Army success in the field. Almost every Army system fielded today contains some sort of computer system. In this era of net-centric warfare, these computer systems are expected to share information with each other securely and efficiently. It is these interconnections that have helped the Army fight and win in recent wars.

There is mounting evidence in the military, the federal government, and private industry that too much outsourcing can be a bad thing. It can leave an organization without the talent needed to oversee the outsourced work, and eliminate a career ladder that allows Army IT leaders to learn their trade before making multi-million dollar procurement decisions. Congress has realized this in the last few years, and is beginning to push the armed services to strengthen their control over IT outsourcing efforts.

This paper makes the case for the uniqueness of IT acquisition as compared to the acquisition of non-IT products and for the need of skilled and experienced Army IT

acquisition professionals and leaders to oversee the contractors and ensure quality results. It analyzes the current Army IT acquisition workforce along with current Army and DoD policy. From this analysis, it determines that there is much confusion over the exact duties that the IT Acquisition Workforce should be performing, there is no single entity responsible for shaping and developing the workforce, there is inadequate technical education and training, and finally that there is a lack of hands-on development experience that would help in overseeing the commercial contractors doing the work.

The paper offers several recommendations to strengthen the Army's IT acquisition workforce including: determining the specific duties and responsibilities of the IT Acquisition Professional, centrally managing the entire workforce, formalizing a mid-career hiring program, creating a non-management technical track, and keeping some technical work in-house to train government personnel so that they can better understand and oversee contractor's technical efforts.

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SHAPING THE ARMY'S INFORMATION TECHNOLOGY ACQUISITION WORKFORCE IN AN ERA OF OUTSOURCING

Introduction

During the last few decades, the Army has steadily divested itself of information technology (IT) development expertise in favor of outsourcing—letting contractors build the Army's systems. The Army acquisition workforce's job is to oversee this work and ensure that the Army gets the quality IT systems it needs, on time and within budget. However, there are signs that the Army's IT acquisition workforce is neither large enough nor well trained enough to adequately perform its oversight role. This paper will examine this issue, and offer recommendations on how to improve the workforce's effectiveness.

The Clinger-Cohen Act of 1996 defines *information technology* as follows:

The term 'information technology,' with respect to an executive agency, means any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the executive agency.¹

This is a very broad definition, and this paper will restrict it slightly. It will exclude pure communication technology (satellites, cell phones, etc.) and focus on the computer systems that allow for the storage, sharing, and use of the information an organization needs to perform its function.

Background

The Push to Outsource

Starting with the development of the revolutionary Electronic Numerical Integrator And Computer (ENIAC) in the late 1940s, the Army has historically taken a very active role in developing the IT it needs. Indeed, as late as the early 1980s, Army civilian and military personnel developed most of the software used by the Army's information systems.² But a variety of factors conspired to push this development work out of the Army and into the private commercial sector.

The Commercial Sector Takes the Lead in IT

The commercial sector quickly realized the value of IT. Businesses invested heavily in it, spurring rapid development in this sector. By the late 1980s, a large amount of IT innovation was coming from outside government—from commercial companies like Sun, Oracle, and Microsoft. By the dawning of the Internet Age in the 1990s, the commercial IT sector dwarfed the government sector. The Army, along with the rest of the Department of Defense (DoD), began to realize that it could leverage this commercial work for its own use. After all, why reinvent the wheel? A prime example of this was the famous “Perry Memo” written by then Secretary of Defense William J. Perry in 1994, which directed the DoD to use commercial standards and technology whenever possible before looking at custom military-specification solutions.³ At roughly the same time, the Federal Acquisition and Streamlining Act directed agencies to procure commercially available items over custom-developed ones to the maximum extent possible.⁴

Don't Compete with Private Industry

As far back as the Eisenhower Administration, there has been a push to ensure that the government is not competing with the private sector. In 1955, the US Bureau of the Budget (forerunner of the Office of Management and Budget) issued Bulletin Number 55-4, which stated: “It is the general policy of the administration that the Federal Government will not start or carry on any commercial activity to provide a service or product for its own use if such product or service can be procured from private enterprise through ordinary business channels.”⁵

In 1965, the first major piece of legislation dealing specifically with IT procurement appeared. The Brooks Act of 1965 required federal agencies to procure IT through competition and lowest price bidding, and to centrally manage this process.⁶ This legislation started the government down the road of depending on the commercial sector for IT products and systems.

The following year, the Bureau of the Budget issued Circular A-76, which provided guidance to agencies for determining whether to develop internally or simply buy needed goods and services. This publication has been revised numerous times, and is still in force today. The current version (2003) states:

The longstanding policy of the federal government has been to rely on the private sector for needed commercial services. To ensure that the American people receive maximum value for their tax dollars, commercial activities should be subject to the forces of competition.⁷

Under the Clinton Administration, the National Performance Review (NPR) was created and led by Vice President Al Gore to make government more efficient and responsive to its customers. According to the NPR charter, one way a government agency should accomplish this is by “cutting back to basic missions.”⁸ Through its reporting requirements and award programs, the NPR process brought pressure on agencies to outsource “non-core” activities.

In 1999, the pressure continued to mount when the Federal Activities Inventory Reform Act (FAIR) defined what functions were considered “inherently governmental” (i.e., could not be contracted out) and required agencies to list which of their functions could be performed by private industry.⁹ Circular A-76 was revised to include this requirement, and the push to outsource began in earnest.

The current Circular A-76 defines an inherently governmental activity as “....an activity that is so intimately related to the public interest as to mandate performance by government personnel.” It defines only two categories of this activity:

- the exercise of sovereign government authority or the establishment of procedures, and
- processes related to the oversight of monetary transactions or entitlements.¹⁰

However, the Circular goes on to state that not everything to do with these categories is automatically inherently governmental, for example:

An activity may be provided by contract support (i.e., a private sector source or a public reimbursable source using contract support) where the contractor does not have the authority to decide on the course of action, but is tasked to develop options or implement a course of action, with agency oversight.¹¹

This very narrow interpretation of *inherently governmental* leads to a very wide definition of what could (and should) be turned over to the private sector. Basically, if an activity doesn't involve paying out money or exercising government authority, it becomes fair game for outsourcing.

A-76 pushes outsourcing even further by requiring agencies to provide yearly inventories of inherently governmental and commercial activities performed by government personnel and establishing a process by which anyone may challenge which list an activity should be on. It also requires agencies to perform competitions between government employees and commercial business before allowing any new commercial activity or expansion of an existing commercial activity to be performed by government employees. The message is clear—unless it is truly core government business or you can prove the government can do it cheaper, you need to outsource.

The Shrinking Military

Since the end of the Cold War with the fall of the Berlin Wall in 1989, there has been a steady push to downsize military manpower as a way of saving money—cashing in on the so-called “Peace Dividend.” In 1989, the Army stood at over 760,000 active military and over 380,000 civilians. Today, in the middle of the Global War on Terrorism, the Army's strength is only 460,000 active soldiers and 260,000 civilians. The other armed services have taken similar cuts.¹² This lack of manpower puts great pressure on the services to outsource anything considered *non-warfighting*. Acquisition, including IT acquisition, falls into this non-warfighting category, and has taken sizeable manpower cuts. For example, the DoD as a whole underwent a 29% reduction in the acquisition workforce from 1991 to 2001.¹³

IT Outsourcing Goes Mainstream

While the DoD was wrestling with these budgetary and manpower issues, so was private industry. In the 90s, companies began looking at outsourcing many functions not considered core to their business. This, they believed would help them focus on what they did best, while allowing other companies with more expertise to handle support functions (such as human resources, accounting, plant maintenance, etc.). One of the early

proponents of this approach, Eastman Kodak outsourced all their IT to an outside company in 1990. They were quickly followed by dozens of major companies who decided that, while they needed the information that IT systems provided, they didn't need to actually build or operation the IT systems in order to get that information.¹⁴

The Result—Army IT Outsourcing

With all these forces at work—an ever more competent and innovative commercial IT sector, a push to outsource non-core government functions, a lack of available Army manpower to do the job, and a belief in the value of IT outsourcing as a viable business practice—the Army, along with the rest of the DoD and the Federal government, slowly divested itself of its ability to build its own IT.

Today, government IT outsourcing is big business. The General Accounting Office (GAO) reported that in FY 2001, the DoD obligated more than \$6.2 billion to outsourced IT services.¹⁵ A recent market survey concluded that the US government's outsourcing of information technology work will increase nearly 6% annually through 2011.¹⁶

Outsourcing May Have Gone Too Far

Over the last ten years, there have been signs that the government may have outsourced too much. Some have raised the alarm that the government may no longer have the expertise to effectively oversee the work its contractors are doing.

Talk in the Press

Recently, there has been much criticism in the press of contractors gaining too much sway over the government. Industry and government observers are beginning to question whether, after years of downsizing and outsourcing, government agencies have enough skilled personnel left to oversee what the contractors are doing. As one contracting attorney put it, “Contracting has certainly grown, but the mechanism to monitor and evaluate what the contractors are doing hasn't grown.”¹⁷

This sort of criticism isn't limited to the government sector. There is starting to be some pushback to private outsourcing as well, and articles about *insourcing*—bringing IT work back in-house—are beginning to appear. A 2007 study by CIO Insight Magazine

determined that most IT executives feel outsourcing is overrated as a cost saver and that managing outsourced efforts requires more effort than originally believed. In fact, an average of 20% of their previously outsourced IT applications and services had been insourced within the last 12 months.¹⁸ As one major corporate chief information officer (CIO) told CIO Magazine, “.... no one will understand your strategic needs better than the people whose livelihood depends on the success of the company.”¹⁹

Few are claiming that outsourcing is dying, but many argue that more emphasis must to be placed on dealing with the difficulties of managing outsourced efforts.

Evidence within the Government

In a 2001 report on the future of the Government IT workforce, the GAO noted that there was no strategic plan to ensure adequate talent to oversee IT procurement and operations, and that “...agencies appear to be at risk of not having enough of the right people with the right skills to manage service procurements.”²⁰

In 2008, David M. Walker, Comptroller General of the United States testified before the House of Representatives Armed Services Committee on this problem, stating, “Unless the federal government pays the needed attention to the types of functions and activities performed by contractors, agencies run the risk of losing accountability and control over mission-related decisions.” He cited the wide use of government contractors providing professional and management support services, which he deemed risky because these personnel, who support government decision makers, can easily influence inherently governmental decision making. In his words, it is critical to, “ensure that government decisions reflect the independent judgment of agency officials and that agency officials retain control over and remain accountable for policy decisions that may be based on contractor work products.”²¹

In 2006, the Director of National Intelligence reported that the intelligence community is competing with its contractors for employees and has no choice but to use contractors for work that is “borderline inherently governmental.”²¹ Whether or not the work should be done in-house had become a moot question. There weren’t enough skilled government personnel left to do the work, and the salaries offered by the contractors made it difficult to hire skilled personnel into government service.

Various members of Congress have weighed in on the issues of outsourcing, government oversight, and inherently governmental functions. The House Armed Services Committee's Readiness Subcommittee held hearings on inherently governmental work in March of 2008. The chairmen, Representative Solomon Ortiz (D-TX), stated, "With [DoD] and the military facing new challenges and responsibilities, Congress should redefine what is considered inherently governmental."²² Representative Tom Davis (R-VA) of the Oversight and Government Report Committee said reforms are needed to keep a closer eye on contractors, and he stressed the need for a larger and better trained government acquisition workforce. Representative Henry Waxman (D-CA), the committee chair, also went on record describing egregious contract abuses and the need for increased oversight.²³ Shay Assad, Director of Procurement and Acquisition Policy at the DoD, stated, "I do think the time has come when we step back and take another look—a hard look—at how we're defining 'inherently governmental.'"²⁴

Besides the dangers of putting too much control in the contractor's hands, there is also the issue that, while a contractor may do exactly what the contract states, it doesn't guarantee that the military users of the product will be satisfied with the results. The contractor is bound only by the *contract*, not by whether or not his work actually adds value. And if the contract isn't perfectly worded, things can go awry. For example, the Army's Total Army Communications—Southwest Asia (TACSWA) was criticized by the GAO because customer satisfaction wasn't even mentioned in the contract.²⁵ More recently, the Navy Marine Corps Intranet Program met with the similar criticism. While the Navy had developed a large set of performance goals for the program, those goals weren't actually written in the contract. Upon review, the contractor was only meeting 15% of those goals.²⁶ Both cases illustrate major weaknesses in outsourcing complicated work such as IT system development. The contract requirements don't always fully capture everything the government wants done, and government program managers aren't always actively managing the program, adjusting the contract if necessary, to make sure that the end product really meets the user's needs. Merely having a contract and more or less passively watching someone execute it is not a recipe for success.

Growing Concerns about IT Security

Besides raising concerns about program performance, outsourcing IT has also been criticized for adding information security risks. In a 2007 study, the Defense Science Board stated that, “DoD has become increasingly dependent for mission-critical functionality upon highly interconnected, globally sourced, information technology of dramatically varying quality, reliability and trustworthiness.” They went on to note that in today’s world, many DoD systems contain software that was developed in foreign countries whose interests do not coincide with ours, and that this presented the opportunity for them to exploit this software by inserting malicious code allowing them to gain access to or deny the US use of its IT systems.²⁷ The GAO had similar concerns, noting in 2004 that many DoD program managers have trusted their contractors to ensure that the software was secure, yet the contractors were “only focused on quality and functionality, not security. No one was actually checking.”²⁸ It is conceivable that no one in the program offices was checking because they lacked the skilled personnel to do so.

Congress Starts to Act

As Congress has become increasingly aware of some of the problems associated with outsourcing, it has begun to take action. As part of the 2008 Defense Authorization Act, Congress specifically banned the further use of lead systems integrators on new programs.²⁹ A *lead systems integrator* is a contractor hired by the government not to build the new product, but to coordinate and manage other contractors. The Army used this approach for the Future Combat System (FCS), and the Coast Guard used it for their Deepwater fleet modernization program. Pentagon officials as high as the Office of the Secretary of Defense (OSD) Director of Procurement Policy,³⁰ as well as various GAO officials,³¹ have suggested that lead systems integrators may be infringing on inherently governmental functions—giving the contractor too much control and leaving the government not fully in charge of the program. While the Army is continuing the use of the lead system integrator on the FCS (with congressional approval), the Coast Guard has decided to bring that function back into government hands. Coast Guard Commandant Admiral Thad Allen commented, “We’ve relied too much on contractors to do the work of government as a result of tightening budgets, a dearth of contracting expertise in the

federal government, and a loss of focus on critical governmental roles and responsibilities in the management and oversight of acquisition programs.”³²

Reining in lead system integrators was only the beginning. The 2008 Defense Authorization Act also took the teeth out of OMB Circular A-76 for the DoD. The Act prohibited OMB, or anyone else, from forcing the DoD to perform any more A-76 competitions to outsource work.³³ It changed the rules of the A-76 commercial-vs-government competition process to be more favorable to government workers³⁴ It also directed the DoD to give special consideration for using government workers over contractors for new functions and for insourcing functions currently outsourced, especially functions “closely associated with the performance of an inherently governmental function.”³⁵

The Act went on to require the OSD to create a Defense acquisition workforce Strategic Human Capital Plan and establish an Acquisition Workforce Development Fund to ensure that the DoD can recruit, train and maintain the force it needs to provide adequate contractor oversight. It also extended the Secretary’s authority to fill shortage acquisition positions, providing the tools to grow the acquisition workforce.³⁶

Less than a year later, Congress took even more outsourcing-related action with the 2009 Defense Authorization Act. This time Congress took aim at *personal service contracts*. These are contracts that can be used to hire contractors to work in DoD offices side-by-side with government workers, assisting them in the execution of their staff duties. Clearly concerned with how much influence these contractors might be having over government decisions, Congress required the Secretary of Defense to:

“.....develop guidance related to personal services contracts to:

- (1) require a clear distinction between employees of the DoD and employees of DoD contractors
- (2) provide appropriate safeguards with respect to when, where, and to what extent the Secretary may enter into a contract for the procurement of personal services; and
- (3) assess and take steps to mitigate the risk that, as implemented and administered, non-personal services contracts may become personal services contracts.”³⁷

The Act further directs the Administrator of Federal Procurement Policy to:

...develop and issue a standard policy to prevent personal conflicts of interest by contractor employees performing acquisition functions closely associated with inherently governmental functions (including the development, award, and administration of Government contracts) for or on behalf of a Federal agency or department.³⁸

Analyzing the congressional actions, it is easy to determine the intent of Congress. They are concerned that DoD has outsourced too much, and needs to more forcefully protect and perform its inherently governmental responsibilities.

The Result

With all these opinions from press and the GAO, and the current mood (and forceful actions) of Congress, it appears that the Army is entering a new era with regard to outsourcing in general and IT outsourcing in particular. While the Army certainly isn't returning to the "do it yourself" mentality of forty years ago, the importance of truly effective oversight—having the talent and experience to tell the contractors exactly what the Army needs, and then managing them to make sure the Army gets it—is on the rise.

The Need for the Army IT Acquisition Professional

To provide this oversight and to manage the IT development efforts, the Army simply must have sufficiently trained and experienced government IT acquisition specialists, personnel who truly understand and appreciate the unique complexities of IT and can guide the contractors and the development process.

A 2002 study on outsourcing by the Gartner Group stressed the importance of good contract oversight: "Without a well-designed and well-implemented strategy for managing the deal and monitoring performance, the good intentions for outsourcing will be thwarted by poorly designed, poorly funded and poorly delivered processes for managing the delivery of services."³⁹ The lack of in-house expertise, both in the business and technical realms, greatly increases the chance of program failure.

There is a prevailing view that all one needs for good government acquisition are competent contracting officers, skilled in writing and negotiating contracts, and perhaps some generic program managers, skilled in managing schedules and budgets. In this

view, all acquisition programs are by and large the same, and require the same skills sets from Army personnel. However, in reality IT programs have some very unique qualities that demand a specialized government IT acquisition workforce to manage them.

The Unique IT Development Cycle

The normal process the US military uses to develop any new system, be it a truck, airplane, or computer system is spelled out in DoD Instruction 5000.2. As described there, the new system goes through a rather formal lock-step process, progressing from concept to demonstration, and then on to production, deployment, and support.⁴⁰ Once in the field, any upgrade is treated in the exactly same way—each upgrade is packaged as an *increment*, and progresses through the same stages. At each step along the way are a series of formal *milestone decision points*, requiring a program manager to gain formal approval from his milestone decision authority before progressing.

Officially, IT systems are supposed to follow this same development process, but the reality is often very different. After all, the key component of an information system isn't metal or brick, but software, which is much easier to change.

For example, to upgrade a weapons system or vehicle, one normally has to return that item to a depot or send an upgrade team to visit every place in the Army where the equipment exists. This makes any improvement a huge, costly endeavor, requiring extensive formal processes to ensure everything works as planned. As a result, one doesn't make changes frequently. Instead, many changes are bundled into a single upgrade effort that will take years to complete. The bundled upgrade becomes complicated and very expensive. It's very important to get it right the first time—few program managers can afford a second upgrade package to fix the first one. As a result, it makes sense to put the upgrade through all the steps of the DoD acquisition process like any new system in order to avoid any costly mistakes.

Upgrading an IT system can be much simpler than a non-IT system. It can be as simple as loading new software on a single set of servers in some central location, or mailing a set of software compact disks to users around the world for them to install. If the hardware (i.e., servers and network equipment) needs replacing, it is often located in a very small number of locations, perhaps just one primary server room and one backup

facility. No need for a factory assembly line or vast numbers of fielding teams—one just makes the changes and moves on.

Because of how quickly changes and improvements can be made, IT system product managers can adopt a different, more fluid model. Instead of bundling up a large number of changes into a multi-year software development effort, one can make small changes throughout the year under the heading of *software maintenance*. Small mistakes are not as costly to correct later—if the software isn't exactly perfect, changes can be made very rapidly as opposed to waiting years for the next upgrade. This allows for an abbreviated development process, skipping or shortening some of the normal steps because there is less need to be “perfect” on day one. This approach sits well with the end users, who get the features they want much sooner than they would under a more formal system.

This also means that most information systems are constantly in all phases of development simultaneously: supporting the existing version, testing the next update, and starting work on the one after that. It is a very different battle rhythm from non-information (i.e., tanks, trucks, etc.) system development, requiring a different mindset for the program management team. In the words of Mr. Gary Winkler, Army Program Executive Officer for Enterprise Information Systems, "In a typical three year tour, a weapons system product manager might take his system from one DoD milestone to the next. In that same time, an effective IT product manager will take his system through all the milestones."⁴¹

Unique IT System Rules and Authorities

In 1996, the Clinger-Cohen Act made it very clear that IT, and specifically information systems, had to be treated differently from other types of development and procurement.⁴² It also formally established the position of the DoD CIO, with significant authority over the development of new IT systems. Since the enactment of Clinger-Cohen, developers of information systems have had to answer to the DoD and Service CIO's, something other program managers don't have to do. This was done both to recognize the unique nature of the development of information systems and to urge information system developers to work towards increased data interoperability. The Act

added many special hoops through which IT programs had to jump, from information assurance to economic analysis to information architecture compliance. These requirements, coupled with directives from the DoD CIO, have created many unique requirements that only IT programs need to comply with. In fact, the single largest chapter in the DoD Acquisition Guidebook, the “Bible” for DoD program managers, is the chapter on unique IT system acquisition requirements.⁴³

Navigating this maze of additional requirements and organizations is a challenge—not for the uninitiated or faint-hearted. Personnel with extensive experience working with IT systems under these rules would make the task much easier.

Unique IT System Security Requirements

Information Assurance—protecting systems from outside attacks and disruptions—has become a specialized field of knowledge all its own. Regardless of the purpose of any given IT system, if it connects to a network then it must be protected. This protection needs to be considered in all phases of system development. Protection cannot simply be “bolted on” at the end of development. As mentioned earlier, both DoD and the Army have laid significant reporting, compliance, and testing requirements on IT systems, from the DoD Information Assurance Certification and Accreditation Process (DIACAP)⁴⁴ to the Army’s Certificate of Networthiness Program.⁴⁵

If a development contractor makes a mistake in this critical arena, it could be extremely costly. At best, this will result in schedule delays and cost overruns as the system is reworked in order to meet DoD and Army requirements. At worst, the system will be fielded with significant vulnerabilities that an enemy can exploit. The Army will pay a high price if an enemy compromises the system and steals or corrupts its data.

Developing IT systems requires a keen understanding of the dangers and threats in cyberspace in the same way that developing an airplane requires an understanding of the dangers and threats in the atmosphere. Army personnel overseeing IT system development need this kind of in-depth knowledge to ensure contractors don’t make costly errors.

Information Technology Development Requires Truly Global Thinking

IT systems are built to streamline work processes and provide better information and ways for leaders to make decisions. Typically, the processes being improved are extremely complicated, cross over many different organizations and communities, and are not fully documented by any one of them. A simple process like ordering a spare part, processing a soldier's promotion, or plotting enemy positions on a map may consist of countless steps performed by many people, each one acting on a combination of official written procedures, local rules, and techniques passed on from previous soldiers. And yet to successfully automate this process, one must fully understand all the pieces.

Additionally, the information generated by a system might be needed by personnel in many different organizations. A part requisition, for example, is of interest to the logistics units that must deliver the part, the lifecycle manager who will buy the part, the finance organization that will pay for the part, the operational commander who wants to know when the part will arrive so his vehicle can be fixed, etc. All these customers have become *stakeholders* with a vested interest in the information within the system. This group of stakeholders can be much more diverse than say, those with a stake in a new rifle or vehicle program.

For example, when preparing for the replacement of the Army's Electronic Military Personnel Office (eMILPO) with the Defense Integrated Military Human Resource System (DIMHRS), it was discovered that many different organizations, from the 8th Army in Korea to the Army's Central Issuing Facilities, were taking personnel information from eMILPO and using it in their own information systems. Many of these customers were not "personnel" organizations at all—they included logistics, finance, training, and installation support organizations. To transition to DIMHRS, one couldn't just work with representatives of the personnel community—virtually everyone in the Army was a "customer" of the systems.

Because of this kind of complexity, information system developers can seldom just work from a written requirements document, or with a single functional proponent. They have to be expert at working hand-in-hand with a large number of stakeholders to ensure that the new system meets the needs of *all* users.

Occasionally, the Army does acknowledge the uniqueness of IT development. For example, at the 2008 US Army Acquisition Awards Ceremony, besides the normal awards for best project/product manager, there was a separate category for excellence in “Information Enabled Army.” This recognized the fact that IT system development is separate and distinct from traditional program management.⁴⁶

The Role of the Army IT Acquisition Professional

As suggested throughout this paper, oversight is more than just passively watching the contractor do the work. An Army program manager and his staff must actively guide the contractor to produce what the Army needs. He has to anticipate problems before they affect cost, performance, or schedule, and work with the contractor and other agencies to solve those problems. If he does not, the system he is responsible for developing is likely to take longer, cost more, and do less than the Army expects.

Because of the unique nature of information systems acquisition, the right person with the right skills and experience can pay big dividends in program management. Whether in a program leadership or supporting staff role, the IT acquisition professional can help a development effort succeed in all phases of the program.

While there is no official list of duties for IT acquisition professionals published by OSD or the Army, the following are a few of the areas where a well-trained and experienced Army IT Acquisition Professional can add tremendous value:

Preparing Requests for Proposal (RFPs). The contracting officer needs assistance in the preparation of the documents telling contractors what the Army wants built. While functional requirements (what the system must do for the end user) are a large part of this, so are technical constraints, such as required software that must be used (or cannot be used), interoperability issues, and IT compliance constraints (Joint Interoperability Test Center testing, NETCOM Certificates of Networthiness, DIACAP standards, etc.) that the system will have to comply with in order to be fieldable. IT acquisition personnel can synthesize the user requirements with any technical requirements to ensure the final system will meet everyone’s needs.

Evaluating Contractor Proposals. While it might seem acceptable at first thought for the Army program office to simply ensure the proposal meets the standards in the

RFP and then just pick the lowest bidder, this approach is seldom sufficient. Each contractor may propose very different approaches, architectures, and technical solutions. While all will claim that their proposed approach is guaranteed to succeed, a long line of failed, late, and over-budget programs shows this is not always the case.

IT acquisition personnel must be able to evaluate the proposals to ensure that the costs and schedule proposed are reasonable. They must use their technical expertise and history of working on similar programs to help determine if each proposal is actually likely to succeed. This avoids intentional or unintentional low bids—where the contractor is unreasonably optimistic on how long it will take or how much it will cost. Without this external “sanity check,” the Army could pick a contractor who, in the end, cannot deliver without additional cash or time that the Army cannot afford.

Additionally, contractors often propose novel solutions that may add benefits not specified in the RFP. If the proposal is being evaluated for *best value*—very common in DoD these days—rather than simply lowest price, then the IT acquisition personnel must be able to evaluate how much added value each proposal contains.

Developing Schedule and Budget. As with all programs, there is more to the budget and schedule than just the contractor’s work. The schedule and budget have to include testing by various oversight agencies (Joint Interoperability Test Center, Army Test and Evaluation Command, the user community, etc.); creation of documents that have to be submitted to outside agencies for review (NETCOM Certificate of Networthiness, DIACAP Authority to Operate, Army and DoD IT Registration databases, etc.); and various user training and fielding activities. Because of a career spent taking IT systems through these hurdles, the IT acquisition professional can better estimate how long the process will actually take, and what it will cost the Army.

Monitoring Schedule and Budget. IT acquisition professionals must be able to keep track of where the system is in its development, and whether the time and money remaining will be adequate to complete the job. This requires more than just checking off days on a calendar. The IT program office staff needs to analyze each new problem or stumbling block that arises, and validate the contractor’s estimates on how long (and how much) it will take to get the program back on track. It is not enough to simply know where one is in the program; Army leaders constantly want to know how much longer it

is really going to take. To do this kind of projecting and validating requires technical knowledge and a history of working with similar IT system development efforts.

Suggesting and Evaluating Performance/Schedule/Budget Tradeoffs. As with all programs, things go wrong. When this occurs, a contractor may offer to lower a performance requirement to shorten the schedule or decrease the budget. Examples of this would be eliminating a feature of the systems in order to meet a key test date or changing to lower costing hardware in order to save money. Much like evaluating initial proposals, the Army needs to feel comfortable that the new adjusted schedule and budget are realistic and likely to still result in a worthwhile system. The IT acquisition professional should be a key player in evaluating the potential changes.

Identifying and Analyzing Risk. The experienced IT acquisition professional is in the best position to define risks to the program, be they technical or regulatory. The IT acquisition professional will know from past experience what particular “bumps in the road” are likely to occur. Done correctly by people with the right skills and experience, good risk definition and analysis will increase the accuracy of program schedules and budgets, helping the program manager determine where within the program to focus the team’s effort in order to keep things on track.

Evaluating Interim Deliverables. As a system is developed, various documents are delivered: things such as data dictionaries, interface specifications, design documents, etc. Each of these deliverables has to be accepted by the government. Acceptance means that the document is correct and can be used to guide the next step of the project. Someone must review and evaluate each document—someone with the technical knowledge to understand it, and the user knowledge to be able to assess the impact on the Army customer(s). The experienced IT acquisition professional is perfectly situated to perform this critical role.

Evaluating Contractor Performance. Many IT development contracts involve *award fees*—bonus money that the contractor can earn over the course of the program. It can be difficult to make these awards appropriately. Most bonus payments are scheduled to occur during the development effort, before the system is delivered. Since the system isn’t finished yet, it can be difficult to determine if the contractor has really done the kind of exemplary work that would warrant the award fee. Someone needs to have the

technical skill to evaluate where the contractor really is in the development process and whether or not he has excelled enough to earn an award.

Translating Between The End User And The Contractor. The IT acquisition professional has one foot in both worlds. He understands the Army and the needs of the Army customers. He should have the technical skill and experience to know what is in the realm of the possible—what can likely be accomplished given the terms of the contract and the current state of technology. This puts him in the unique position of being able to translate new customer requirements into “tech speak” for the contractor, and explaining technical challenges and opportunities to the customer in terms that can be readily understood.

The Need for the IT Acquisition Leader

Thus far, this paper has focused on the value of the IT professional as a support staffer. Similarly, a case can be made for the need for IT acquisition leaders in key program management and program executive officer positions. Simply put, the IT acquisition leaders need to be developed. They need training and extensive experience that is significantly different from their non-IT acquisition counterparts.

The Army has long recognized the value in leaders having technical experience relevant to the organizations they lead. For example, very few Medical Service Corps colonels have ever been assigned command of a Combat Arms Brigade, and few Air Defense Artillery officers have been assigned to command logistics units. In fact, the need for relevant experience is imbedded in our doctrine. Field Manual 6-0 (Mission Command: Command and Control of Army Forces) specifically notes the importance of *intuitive decision making*, which it defines as:

Intuitive decision making is the act of reaching a conclusion which emphasizes pattern recognition based on knowledge, judgment, experience, education, intelligence, boldness, perception, and character.⁴⁷

It also states:

Clausewitz described intuition as ‘the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection.’⁴⁷

The manual goes on to state that this kind of intuitive decision making is especially useful when time is short or information is incomplete. While acquisition decisions are seldom split-second affairs, they are often made with incomplete information. After all, the whole purpose of most acquisition programs is to build something that has never been built before. This practically guarantees that key pieces of information—how long it will take, how much it will cost, whether or not the latest changes will work as planned—are unknown. While detailed analysis is important to making good system development decisions, so is good intuition. An experienced IT acquisition leader, by virtue of his work on previous IT programs, is much more likely to have developed that kind of intuition.

The GAO seems to agree. In a report on problems with weapons systems acquisition, the GAO strongly recommended the need to “strengthen training and career paths as needed to ensure program managers have the right qualifications to manage the programs they are assigned to.”⁴⁸ In other words, it’s not enough to be a generically qualified program manager—one also needs to truly understand the details of the product one is responsible for developing. In the same way that it makes sense to use personnel with an aviation background to lead aviation programs, it makes sense to use IT personnel to lead IT programs.

Without the good intuition that comes from experience with IT system development, the IT program manager or program executive officer (PEO) may be at the mercy of his staff and contractors; he will not be able to effectively judge the quality of the information they are providing him until after mistakes are made. Given the hundreds of millions of dollars tied up in Army IT systems, it seems wise to develop and assign experienced leaders to avoid these kinds of costly errors in judgment.

Current Challenges in Developing the Army IT Workforce

Given the value of the IT acquisition professional to the Army, it seems appropriate to examine how well the Army is doing at developing and utilizing them. Analysis reveals much room for improvement. The way the Army manages the workforce is confusing and segmented, with no single agency responsible. It is unclear

what the exact duties of an IT acquisition professional should be, and there is a shortage of technical education and hands-on IT development experience.

Confusion over Workforce Management and Slotting

The overlay of an acquisition personnel management structure on top of the existing Army/US government personnel management structure has resulted in some confusion about who is responsible for the development of the IT acquisition professional. There are many agencies involved, but no single authority responsible for ensuring that the Army has the correct number of IT acquisition professionals, or that they have the correct skill sets.

The Defense Acquisition Corps, of which the Army Acquisition Corps is a subset, had identified fifteen different acquisition *career fields*, from contracting officer to program manager. Each of these fields has certain standards of training and experience that are supposed to be met. One of these fields is entitled “Information Technology.”

Table I. DoD Acquisition Career Fields

Career Field	Code
Auditing	U
Business, Cost Estimating, and Financial Management	K
Contracting	C
Facilities Engineering	F
Industrial/Contract Property Management	D
Information Technology	R
Life Cycle Logistics	L
Production, Quality & Manufacturing—Production & Manufacturing	G
Production, Quality & Manufacturing—Quality Assurance	H
Program Management	A
Purchasing	E
Systems Planning, Research, Development & Engineering—Program Systems Engineer	W
Systems Planning, Research, Development & Engineering—Science & Technology Manager	I
Systems Planning, Research, Development & Engineering—Systems Engineering	S
Test & Evaluation	T

Military and civilian acquisition positions in the Army (and DoD) are coded for one, and only one, of these fifteen career fields. This sounds straightforward, but in practice is very complicated.

Managing IT Acquisition Civilians—Too Many Fingers in the Pie

For Army civilian acquisition professionals, the confusion begins because every acquisition civilian employee has two designations—a standard US government occupational series and an acquisition career field. In some cases, these two designations correlate. For example, all acquisition civilian with occupational series 1102 (Contract Specialist) are required to be certified, or working towards certification, in Acquisition Career Field C (Contracting).⁴⁹ But Acquisition Career Field R (Information Technology) does not align with a single government occupation series. In fact, the IT acquisition position category descriptions published by DoD’s Defense Acquisition University lists 10 separate “typical” occupational series that might work in the Acquisition Career Field R (Information Technology). These include certain general administrative series, electronics engineers, general business and industry series, operations researchers, computer scientists, and information technology managers.⁵⁰

To make matters even more complicated to manage, some of these same occupational specialties are listed as “typical” for a total of eight of the other fourteen acquisition career fields.

Table II. Applicable Government Occupational Series for Acquisition Career Field “R” (Information Technology)

Series	Number	Other Acquisition Career Fields for this Series
Miscellaneous Administration and Program	0301	Business, Cost Estimating, and Financial Management, Life Cycle Logistics, Production, Quality & Manufacturing—Production & Manufacturing,
Management and Program Analysis	0343	Business, Cost Estimating, and Financial Management, Life Cycle Logistics, Program Management
Telecommunications	0391	
General Telecommunications	0392	
General Engineering	0801	Business, Cost Estimating, and Financial Management, Life Cycle Logistics, Production, Quality & Manufacturing—Quality Assurance, Program Management, Systems Planning, Research, Development & Engineering—Program Systems Engineer, Systems Planning, Research, Development & Engineering—Science & Technology Manager, Test & Evaluation
Electronics Engineering	0855	Business, Cost Estimating, and Financial Management, Production, Quality & Manufacturing—Quality Assurance, Program Management, Systems Planning, Research, Development & Engineering—Program Systems Engineer, Development & Engineering—Science & Technology Manager, Test & Evaluation
General Business and Industry	1101	Business, Cost Estimating, and Financial Management, Life Cycle Logistics, Program Management
Operations Research	1515	Business, Cost Estimating, and Financial Management, Life Cycle Logistics, Production, Quality & Manufacturing—Quality Assurance, Program Management, Systems Planning, Research, Development & Engineering—Program Systems Engineer, Development & Engineering—Science & Technology Manager
Computer Science	1550	Business, Cost Estimating, and Financial Management, Systems Planning, Research, Development & Engineering—Program Systems Engineer, Development & Engineering—Science & Technology Manager
Information Technology Management	2210	Test & Evaluation

Because different agencies are responsible for the development of different occupational series and acquisition career field personnel, it is very difficult to determine who is actually in charge of the IT Acquisition workforce.

By means of Army Regulation 690-950, the Army has grouped all civilian occupational series into *career programs (CP)*. The designated *functional chief* of each CP is responsible for training and educating their portion of the workforce, handling any internship program, and generally looking out for the welfare (i.e., size, retention and quality) of the personnel within their program area. One challenge is that the typical series for listed for acquisition IT professionals are split across three separate career programs. The majority of the IT and general administrative personnel fall in CP 34, managed by the Army CIO/G6; the computer scientists and engineers fall under CP 18, managed by Commander of the US Army Materiel Command; and Series 1101 (General Business and Industry) falls under CP 14, managed by the Assistant Secretary of the Army for Acquisition, Logistics and Technology.⁵¹ The *Functional Chief* of each CP is responsible for the career management of *all* civilians with those occupational series—both non-acquisition and acquisition. The regulation does mention the Acquisition Corps, but it doesn't explain who is truly responsible for the acquisition portion of the workforce.

Managing IT Acquisition Officers—Not Being Done

The military side of Army IT acquisition is a bit more straightforward, but still confusing. All military acquisition personnel are managed by the Acquisition Branch of the Army Human Resources Command. Just like civilian positions, every military acquisition position is coded to a particular specialty, with the code (known as an *Area of Concentration*) 51R used for IT acquisition positions. However, while positions are coded for IT Acquisition, the officers who fill these positions are not. In the latest rewrite of DA Pamphlet 600-3, which governs officer career management, the Area of Concentration of 51R was eliminated and all officers with that code were rolled into the 51A (generic program manager) Area of Concentration. Because of this, when an organization needs someone with 51R experience, personnel managers have to review available officers' files to ascertain who has the prerequisite experience/acquisition certification. Failing that, they assign someone who can achieve the necessary certification with the regulatory requirement of 24 months. The current mindset is that acquisition officers need to be well rounded, “agile and aggressive leaders,” rather than

specialists. The emphasis is on assigning officers to all the different fields in acquisition to make them well-rounded, rather than honing their skills in a single area (like IT) through a series of assignments.⁵² As a result, developing military IT acquisition officers is a hit-or-miss proposal. Hopefully, the Army will have the number it needs. But if it does, it will be the result of luck, not a plan.

The Army Acquisition Support Center—Involved, But Not Responsible

The Army does have an organization entitled the US Army Acquisition Support Center, which lists amongst its duties, to “Plan, program, and oversee/execute career management activities for the AL&T Workforce (e.g., policies, training, opportunities, etc.).”⁵³ But, as discussed earlier, the actual management of the workforce is the responsibility of many other agencies. The Support Center does focus on providing training opportunities for Army acquisition personnel, based on the DoD standards; but it is not staffed to act as a proponent for the various career fields. As of this writing, no one in the Support Center associated with the support of the IT career field is actually an IT acquisition professional themselves. The Support Center attempts to coordinate the management efforts of all the various CP functional chiefs and the Army Human Resources Command, who by regulation actually *own* all the personnel. But none of these organizations is actually chartered to develop an acquisition workforce either. Despite the hard work of many good individuals, the current setup gives no one both the power and the responsibility to develop the Army’s IT Acquisition workforce.

No One is Looking Out for IT Leaders

There is one additional piece of confusion, related to IT acquisition leaders. Since all acquisition positions have to be coded with a single Career Field Designator, all product/program manager positions are coded “A” (Program Management). They are not coded as IT (“R”) positions at all. There is no way, given the current system, to designate a particular program manager position as requiring a certified IT acquisition professional. On the books, a person is either a program manager or an IT professional—never both. Within the Army Acquisition Support Center, there are different departments responsible for the IT field and the program manager field; So even if all these CPs weren’t involved,

there would still be no single organization looking out for the entire IT Acquisition workforce.

Confusion over Duties

In light of Congress's concern over inherently governmental functions and keeping contractors at arm's length from those functions, it makes sense for the Army to have clear guidelines as to what tasks it expects government IT acquisition professionals to perform. This would be helpful not only to justify positions, but also to shape the kind of training and experience these personnel need. It would help in determining when to use a government IT professional for a task and when to use a contractor. While this paper has suggested what some of those tasks might be, the fact remains that there is no published list of duties for IT acquisition professionals, or indeed for any of the acquisition specialties.

The only published guidance is listed in the IT Career Field Position Category Description, which states that IT acquisition professionals:

- Provide direct support for acquisitions that use Information Technology (IT), including National Security Systems.
- Apply IT-related laws, policies, directives, and provide IT-related guidance through the total acquisition life cycle.
- Support Global Information Grid compliance activities, Information Assurance certification efforts, Information Support Plan preparation in accordance with DoD 5000 and 800 series, Chapter 7 of the Defense Acquisition Guidebook and service-unique information management policies

From this rather vague description, one could describe the IT acquisition field as primarily Clinger-Cohen Act compliance, sort of like a legal advisor to make sure the program meets all the various regulations and policies. On the other hand, the first bullet, "Provide direct support..." could cover a myriad of technical activities. When one takes into account that the IT career field can include electrical engineers and computer scientists, this view seems more likely. One hardly needs that kind of technical talent merely to oversee policy adherence.

But when it comes to technical IT duties, the “Systems Planning Research and Development—Program Systems Engineer” career field may come into play. This career field, like the IT field, includes computer scientists and electrical engineers. And in fact, their Career Field description lists many of the tasks suggested in this paper, such as requirements development and risk management. However, this career field also includes almost every possible kind of technical expert from mechanical engineers to biologists. While a rather broad category, the description includes such relevant activities as risk management and technical assessment. The training requirements for this career field do allow the employee to take some electives from the IT track, which makes it useful. But there is no method of determining whether a “systems engineer” is an IT systems engineer, an aviation systems engineer, or perhaps a biological systems engineer. The systems engineer career field is incredibly generic, in spite of the very different functions we would expect these different types of engineers to perform.

There is simply no clear guidance that maps specific acquisition functions to either of these two specialties. And without that level of detail, it’s difficult to ascertain just how many IT and program system engineers the Army needs, and in exactly what skills each needs to be trained.

A clear example of the confusion lies in comparing the manpower of the Army’s two primary IT PEOs—the PEO Command Control, Communications Tactical (PEO C3T) and the PEO Enterprise Information Systems (PEO EIS). PEO C3T has over 100 systems engineers and only about 20 IT professionals. PEO EIS has over 100 IT professionals and only two systems engineers!⁵⁴ Yet both organizations build IT systems. Which one is staffed correctly? It’s impossible to tell. But it is reasonable to assume that some IT professionals are doing systems engineering work, while some systems engineers are doing IT work. Better guidance is needed.

Not Enough Technical Talent

While it is difficult to determine exactly how many technical personnel the Army needs, there do not seem to be enough of them to go around. Within the IT career field, less than half have IT or computer-related degrees.⁵⁵ Less than a third has any form of advanced degree. These are not encouraging numbers.

Why so few? One theory is that the pay is too low. A college student with an IT degree joining the Army Acquisition Corps can expect to make around \$39,000 a year (a GS-7 salary) in the Washington DC area.⁵⁶ According to a recent survey on Dice.com, a leading career website for technology professionals, that same student could make in excess of \$44,000 a year in the private sector. In fact, according to that same survey, the average IT salary in the DC area is almost \$89,000.⁵⁷ And that's just the average salary—presumably the truly talented people (the same ones the Army would like building its systems) make much more.

Another possibility is the type of work available. Army acquisition work is primarily oversight—evaluating other's work—rather than doing it yourself. While there have not been surveys to verify this, it seems plausible that many computer scientists and engineers want to use their skills in a hands-on sense—they want to actually build systems, not evaluate and guide others who get to do the “real work.”

Whatever the reason for these shortages, weak technical skills within Army IT Program Management shops can only mean weak oversight.

Little Practical Experience

Besides having issues with attracting technical expertise, the Army Acquisition Corps faces challenges in developing and maintaining that technical talent once a person is hired. Since acquisition work has become almost entirely oversight, there are few places for the newly hired IT professional to build technical skills by actually *doing* the work.

Take, for example, the newly hired computer science graduate right out of college. In the private sector, he will probably go to work as a programmer, graduate to system designer, and then perhaps move into program management or assignment as a lead engineer. By the time he is put in a leadership position, he will have years of practical experience to help him make smart program decisions.

If that same individual joins the Army Acquisition Corps, he goes straight into an oversight or staff role—reviewing documents, setting schedules and budget, etc. However, his technical skills never really have the chance to be exercised and grow. Later in his career, when he gets promoted to a product manager or lead engineer

position, he will still have the technical skills of a brand new 21-year-old college graduate—except those skills are now a decade or two out of date, and may have atrophied immensely.

A study of IT workers in the private sector in Great Britain supports this point. This study, conducted for the British Department of Trade and Industry, warned that as companies outsourced technical functions to companies overseas, they eliminated lower level technical jobs (programmers, call center employees, etc.) in Great Britain. The problem is that these low level jobs are where you “grow” personnel to assume the higher level jobs (project managers, solutions architects, account managers) that companies need to oversee the outsourced functions. Without access to graduates of these entry-level IT jobs, companies are at a loss as to where to hire their oversight personnel. So instead, they turn to hiring oversight personnel away from the competition, a practice that can only go on for so long as no new personnel are entering the job pool.⁵⁸ It is easy to see the parallel to Army IT acquisition—if the personnel don’t actually build anything themselves, how can they develop the technical skills needed to evaluate others who are building things?

Years ago the author worked at the National Security Agency (NSA) on an information security program. The Division Chief was an engineer of great talent. He had honed his skills as a young government employee working on the team that actually built the prototype of the STU-III secure telephone. In those days, the NSA did much of its prototype work in-house using its own government engineers. His early career experiences helped him as a leader. His technical skills at assessing risk and validating contractor-proposed solutions helped all his division’s programs to succeed. But like the rest of the government, the NSA no longer does as much in-house development, and new engineers don’t get to build security devices any more. As a result, it can no longer “grow” leaders like this Division Chief.)

There are places within the Army Acquisition Corps where personnel can do real technical work, notably the laboratories of the US Army Research, Development, and Engineering Command (RDECOM). But there is no program in place to get the technically experienced personnel out of the labs and into PM shops, and no easy way to rotate newly hired PM employees through the labs for technical refreshment.

Large Workforce Turnover Ahead

To compound the workforce problems listed above, there is also the worry that large numbers of the Army IT acquisition workforce may be retiring soon. According to data provided by the Army Acquisition Support Center, almost a third of the workforce will be retirement eligible within the next five years.⁵⁵

The Big Question

Does the Army have enough people with the right skills to do the Army's IT development work?" The answer is—the Army doesn't know. Neither DoD or the Army has clearly identified IT acquisition duties. As a result, it cannot be determined if the Army has adequate numbers or adequate skills to perform those duties. And since no one organization is responsible for the IT workforce, no one is even asking the question!

Recommendations for the Future

If the Army wants better results from its IT programs, and if it wants to stay abreast of mounting congressional concern, now is the time to revitalize the IT Acquisition workforce. Based on the issues analyzed in this paper, the following are some major recommendations to consider.

Centrally Manage the Entire IT Acquisition Workforce

Put the career management of all IT personnel, including engineers, IT program managers, and military officers, under a single lead agency. This would help the Army translate the duties required of IT acquisition personnel into specific training and experience requirements which could be used to develop personnel and certify their competency. It would also give the Army IT Acquisition workforce a single proponent and advocate—someone who is responsible for ensuring the Army has enough personnel with the right skills assigned to the right organizations.

Possible lead agencies include the Army Acquisition Support Center or the Army CIO/G6. But a single agency needs to be in charge, with all other interested parties in support. And in order to do the kind of research and planning required, the responsible office needs to have human resources *and* IT acquisition personnel in it.

On the civilian side, part of having a single lead agency would involve providing all IT acquisition personnel, including program managers and system engineers, with some additional personnel designation. This would make it clear who is an IT program manager or an IT systems engineer, as opposed to non-IT program managers and engineers. Once designated, it would be easy for a single agency to take responsibility for the population.

On the military side, this would involve redesignating some officers as 51R (the old code for Information Technology Acquisition) and guiding their careers accordingly. While the Army may need well rounded officers to fill many of its senior leader ranks, it should not be blind to the value of subject matter experts. There is room in the Army for an IT Acquisition officer career ladder. There are clear IT leadership positions up to the colonel level. There are even general officer slots that could benefit by being filled by IT Acquisition Officer, such as the leadership of PEO Intelligence and Electronic Warfare, and PEO Command Control Communications Tactical. Also, while the position of PEO Enterprise Information Systems has been traditionally filled by a civilian, there is no reason that a qualified IT General Officer could not be used in that capacity. Even the position of Army CIO/G-6, the lead IT officer in the entire Army and a three-star billet, is designated by the Army as a *Critical Acquisition Position*, suggesting that it could possibly be held by an IT acquisition officer. A military IT acquisition career path could develop officers towards these positions, and give them the experience they need to truly excel in them.

A corollary to this would be to code certain leadership positions (e.g., program and program managers) as requiring IT career field certification in addition to pure program management career certification. This would ensure these key positions are filled by personnel with both management and IT training and experience.

Determine the Duties of Army IT Acquisition Professional

The Army Acquisition Center, in cooperation with the Defense Acquisition University, should define exactly what tasks and functions personnel in the IT and the IT portion of the Program Systems Engineer Track should be accomplishing. This would not only focus training and guide the shaping of the workforce; it would help build

appropriate organizational manpower structures, and would provide clear guidance on where the use of in-house contractors is appropriate. In light of Congress's recent interest in personal service contracts described earlier, it makes sense to take the initiative before a solution is forced upon the Army from above.

Emphasize Mid-Career Hires

Especially in a down-turning economy, the Army may be able to hire competent IT professionals away from private industry. This could be a great way to keep current technical skills in the workforce, and to leverage the hands-on experience one gets in the private sector. But special attention would be needed to *green* these new hires. They may understand IT, but they probably don't understand the Army and its customers. In the same way that we have rotation programs for interns today, the Army should fund a program to orient mid career hires not only to their own organization, but to the Army they serve.

Create a Technical Career Track

Not all engineers want to manage, but most want to advance. The Army should establish a clear career path for qualified technical personnel, for example going from program engineer to lead systems engineer to technical director at higher grade levels. Using the model of the NCO chain in the uniformed Army, the Army could establish technical directors at each level of the hierarchy who would advise the program leadership on technical matters, and directly coordinate with lower level technical leadership to resolve issues. This should increase retention, highlight the value of real technical oversight, and provide key technical staff support to decision makers.

Consider Technical Rotations

While the Army does not have the kind of assignment authority over civilians that it has over uniformed acquisition workers, it could still develop a program for *technical rotations*, where an engineer leaves the PM shop and goes to work in a Army lab doing real technical work. A one or two year tour every ten years could help keep our oversight personnel current and savvy, and may help with recruiting personnel who enjoy hands-on

technical work or are worried about losing their skills. The Army could provide bonuses for such rotations, or make them a prerequisite for certain positions.

This might involve partnerships with non-PEO organizations that are co-located at the same installation. This fits in nicely with the current trend of combining PEO and Army Materiel Command units into integrated *Lifecycle Commands*. It also might be useful for PEOs to consider keeping a certain amount of work in-house specifically for professional development. A PEO could choose one or two smaller development programs and use his government personnel to develop the prototype before relying on contractors. In this way, he could continually hone the skills of his technical workforce.

Conclusion

This paper has attempted to make the case that IT oversight is critical to Army acquisition. This oversight can be improved by acknowledging its unique characteristics and growing a force of experts to guide our systems through the various stages of development and into the hands of the soldiers and civilians who make the Army run. The acquisition community owes the Army world-class IT systems. It will take well trained and experienced Army IT professionals to make this happen.

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